Message

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Sent: 8/16/2019 9:17:27 PM
To: Anna Kasko (anna.kasko@maryland.gov) [anna.kasko@maryland.gov]
Subject: Notes for our 8/29 meeting
Attachments: OVTA Report_FINAL with Appendices.pdf; SF Final BASMAA Trash Monitoring Program Plan_10.27.17 (w-Attach).pdf; Long-Term Trash Plan - San Mateo - 070116.pdf

Hi Anna, below are some preliminary research notes of mine that I plan to use to help guide our brainstorming meeting. I've attached some of the documents that I reference in case you were wondering. Am I missing anything big? Do you have notes of your own? Feel free to give me a call if you'd like to discuss. I'm only in the office next Monday before 11 am and all day Thursday.

Trash Visual Assessment Methods: Can we use a variety of San Francisco's assessment options in the Anacostia? For instance, the MS4s can consider doing on land visual assessments on streets and sidewalks in their jurisdictions to locate trash hotspots, note areas already in compliance, and over the years, show trash reduction progress. The in-stream qualitative assessment can be used in conjunction with the quantitative sampling that COG already performs. Perhaps, the TMDL would not be met until qualitative assessments show an "average" low level of trash throughout the watershed. Perhaps we need to define that "average" (i.e. if less than 10% of COG's 36 sites show an average score greater than "low"). These assessments are relatively simplistic, allowing volunteers to conduct surveys for additional data.

1. MDDNR: This protocol seems too simplistic for our work. I'd rather rely on San Francisco's efforts since their projects are heavily funded and researched. The MBSS assigns a "trash rating" (Aesthetics) to all sites. From their manual: The trash rating is scored on a 0-20 scale based on criteria found on the Stream Habitat Assessment Guidance Sheet. The scoring of this metric is based on the amount of human refuse in the stream and along the banks of the sample segment.

   Optimal (16-20) Little or no human refuse visible from stream channel or riparian zone
   Sub Optimal (11-15) Refuse present in minor amounts
   Marginal (6-10) Refuse present in moderate amounts
   Poor (0-5) Refuse abundant and unsightly

2. Receiving Water Trash Monitoring Program Plan for the San Francisco Bay Region (2017): Page 31 and attachment 7 (pdf pg 111) for qualitative and quantitative surveys SOPs. The qualitative SOP is shown below. In addition, field staff record information about the vegetation in the area, take photos, and note possible source pathways. Sites were generally assessed twice a year in dry and wet seasons. Volunteers are able to perform these assessments. Attachment 2 (pdf pg 58) for Summary Review of Historical and Current Receiving Water Monitoring Efforts, Methodologies and Protocols for Trash. The authors chose 13 methods across California to research for ideas.

II. Qualitative Assessment - Trash Condition and Pathways				
	Trash Condition Category			
	Low	Moderate	High	Very High
Description	• Effectively no or very little trash • On first glance, little or no trash is visible • Little or no trash is evident when streambed and stream banks are closely examined for litter and debris • One individual could easily remove all trash observed within 30 minutes	• Predominantly free of trash except for a few littered areas • On first glance, trash is evident in low levels • After close inspection, small levels of trash are evident in stream bank and/or streambed. • On average, all trash could be removed by two individuals within 30 minutes to one hour. • Approximately 2-3 times more trash than the low condition category	• Predominantly littered except for a few clean areas • Trash is evident upon first glance in moderate levels along streambed and banks • Evidence of site being used by people: scattered cans, bottles, food wrappers, plastic bags etc. • On average, would take a more organized effort (more than 2 people, but less than 5) to remove all trash from the area. Removal of trash would take 30 mins to 2 hours. • Approximately 2-6 times more trash than the moderate condition category	• Trash is continuously seen throughout the assessment area • Trash is distracts the eye on first glance • Substantial levels of litter and debris in streambed and banks • Evidence of site being used frequently by people (e.g., many cans, bottles, food wrappers, plastic bags, clothing; piles of garbage and debris) • On average, would take a large number of people (more than 5) during an organized effort to remove all trash from the area. Removal of all trash would take > 2 hours. • Approximately >2 times more trash than the high condition category
Site Score	1 2 3	4 5 6	7 8 9	10 11 12
Vegetated Condition Assessment				

3. On-land Visual Trash Assessments (used in California on the track 2 approach for compliance with statewide trash regulations):
   A handful of MS4s have chosen to use the track 2 approach. In doing so, they conduct on-land visual assessments (OVTA) of their streets and sidewalks to score the area on a scale of A - D. These MS4s have made significant institutional efforts to reduce trash and achieve an acceptable trash score (counting as full compliance). An area is given a low trash score if it equates to generating less than 5 gallons of trash/acre/year. An area with consistent scores of A will be considered in full compliance. A SF study to assess the effectiveness of OVTA scores on estimating trash quantities entering stormwater conveyances showed that the method is relatively accurate.

Table 1.1. Trash generation categories and associated "best/midpoint" rates and ranges (gallons/acre yr^{-1}).

Category	Low	Moderate	High	Very High
Trash Generation Rate (gallons/acre yr^{-1})	2.5 (0-5)	7.5 (5-10)	30 (10-50)	100 (50-150)

SF suggests that OVTAs are conducted (1) during wet and dry seasons, (2) halfway between reoccurring street sweeping events, and (3) only when less than 0.5 inches of rainfall has occurred in a 24 hr period within 2 days prior to the scheduled assessment event. The study found that (1) trash is generated consistently throughout the year and wind and dumping contribute significant amounts of trash to sewers. Also, that (2) recent rain does improve overall OVTA and street scores, but not sidewalk scores. Also, (3) scores on streets worsened within a few days after street sweeping and then stabilized after 7-14 days. Scores on sidewalks were not much affected by street sweeping. The study documented insignificant score difference between assessors at identical sites. The study also shows that a site should be assessed between 2-4 times to achieve an acceptable level of error. Also, the OVTAs should be conducted on at least 10% of the street miles within the area where control measures are implemented.

The Baseline Load

- 2010 Anacostia trash TMDL: In-stream monitoring was used to calculate the nonpoint source load (big items) and stormwater outfall monitoring was used to calculate the point source load (small items). See OneNote page above on 2010 TMDL baseline load. Things to consider if we want to revise the baseline load:
    - Point source load: Calculated based on stormwater outfall monitoring data. This would not be easy to recalculate as the counties and DC do not monitor outfalls anymore. DOEE conducted outfall monitoring from 2013 - 2016, but decided the data wasn't useful so stopped collecting. The MD counties did not collect any outfall data as far as I know. At a minimum, we can update the land-use data and calculate new loads based on old TMDL's point source loading rates. Should we do this? Do we think it would be worthwhile or has so little land-use changed in our broad overall categories that it wouldn't be worth the effort?
    - Nonpoint source load: Calculated based on the in-stream monitoring performed by COG. I imagine recalculating the nonpoint source load would be relatively simple and consistent with the 2010 TMDL.
    - CSO Load (DC Water): The loading rate for the CSO system was derived from monitoring data from a trash trap system attached to a CSO outfall. This data was from a previously completed study not done in conjunction with this TMDL. The report *DC-WASA Combined Sewer Overflow Anacostia River Trash Reduction Demonstration Project: Fresh Creek Netting TrashTrapTM System* (MWCOG, Department of Environmental Programs 2001) outlines the system installation, trash collection, and monitoring undertaken over a 9-month period from August 2000 to April 2001. During the data call, DC Water sent new data to show that the original load was calculated incorrectly.
      The value of 79 lbs/mg was based on taking an arithmetic average of the data from each storm. This approach equally weighs a very small storm such as 8/2/2000 where 0.21 mg overflowed, with a large storm such as 9/27/2000 where 2.75 mg overflows. To address this, most CSO programs use "event mean concentrations" instead of arithmetic averages. This is calculated by taking the total pounds of trash (1,869 lbs) divided by the total volume of CSO (5.214 mg) and multiplying it by 10% for the portion that is human made trash. This results in a value of 36 lbs/mg, which DC Water believes is a better estimate of the overall trash from this study. In addition, DC Water provided a limited amount of newer data to estimated revised loads based off the installation of the Anacostia tunnel. Perhaps, we can request additional data from them to revise their baseline load. I think that would be relatively simple assuming that they are already collecting the data.

Adaptive Management Language

- Baltimore Harbor trash TMDL: "Since the TMDL methodology is directly linked to monitoring data, MDE will make it a priority to revisit the TMDL allocation values to ensure the allocations are based on accurate, representative and up-to-date data. Because the implementation of the TMDL is strongly linked to the MS4 permit requirements, the TMDL will be reevaluated in coordination with the MS4 renewal process. Criteria to be considered for reevaluating the TMDL allocations will include: 1) Evaluation of all new data presented by Baltimore City, Baltimore County, and other third parties over the five-year permit cycle; 2) Public participation in the reevaluation process." "One area of concern expressed by stakeholders is if the jurisdictions are doing all they can, yet cannot collect the required TMDL allocation of trash because through education they have reduced the trash load. If a jurisdiction is unable to collect the amount of trash specified in their WLA and they can show through monitoring that trash is not impairing designated use, the TMDL allocations can be revised."
- Los Angeles trash TMDL: "The final waste load allocation will be considered complied with when the Executive Officer finds that devices or systems and/or institutional controls have removed effectively 100% of the trash from the storm drain system discharge to Los Angeles River or its listed tributaries." "The DGR will be determined from direct measurement of trash deposited in the drainage area during any 30-day period from June 22nd to September 22nd of a given year, and recalculated every year thereafter. The DGR will be calculated as the total amount of trash collected divided by 30 (the required duration of trash collection)."

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